

For the purposes of competitive assessment, a key issue is whether one firm is dependent upon its *competitors* for key inputs. Clearly, CLECs who are leasing elements from BellSouth remain heavily dependent upon BellSouth to provide service, contractual and regulatory protections notwithstanding. The Justice Department routinely recognizes in merger analysis that firms dependent upon their rivals for key inputs, *e.g.*, through a supply agreement designed to fix an anticompetitive problem associated with an acquisition, typically are not as strong a competitive force as those who are truly independent. Competition from firms who rely upon a rival for a key input, and whose basic ability to offer services is dependent upon contractual rights imposed unwillingly on a direct rival, are generally not “economically equivalent” to fully independent rivals.

### **C. General Principles: Is Competition Enabled?**

One important indicator of imminent competition in local exchange markets is the expenditure of significant non-recoverable (sunk) investments by CLECs. Such investments constitute a vote of confidence that competition is feasible, by those with a direct financial stake in making competition a reality. Having acknowledged the economic importance of sunk investments, I must emphasize that the presence of some sunk investments by some carriers does not itself suffice to demonstrate that local markets have been opened to competition, or that these investments will lead to significant competition, for two reasons.

First, it would be contrary to the public interest for these investments to be stranded or devalued by problems implementing interconnection with BellSouth. Any sunk investments that have been made will remain at risk until it has been proven that the entrants can indeed rely on BellSouth to provide critical inputs in a non-discriminatory manner. Such problems are less likely to arise if BellSouth is permitted to enter long-distance markets only after the required aspects of interconnection have been proven to work in practice on a commercial scale. By deferring Section 271 authorization until BellSouth has demonstrated its cooperation, local competition is enhanced, entrants' investments are partially protected from exclusionary tactics by BellSouth, and further investments by CLECs are encouraged.

Second, not all sunk expenditures to provide local telephone services are specific to those services. Investments in facilities that also jointly provide access services and exchange services, such as those of ACSI, are less meaningful in inferring that entry barriers into local exchange markets have been lowered than investments in fully specific assets. In other words, when evaluating the significance of sunk investments for assessing market participants' beliefs about the feasibility of local exchange competition, it is important to account for the entire range of services provided by those investments. Due to the presence of economies of scope in the provision of access and exchange services, some investments in local facilities may be recoverable through provision of access services, and not reliant on the full range of interconnection necessary to a CLEC. Indeed, much of the investment in downtown fiber networks, in South Carolina and nationally, has been undertaken to provide access services, not exchange services.

In local exchange markets, barriers to growth may be at least as important as barriers to entry. By “barriers to growth,” sometimes referred to in the literature as “barriers to mobility,” I mean market conditions that impede the ability of market participants to compete effectively and add new customers or services. After all, even if a firm has made some investments in the local exchange market and entered that market, its ability to compete and attract customers may still be limited by BellSouth’s conduct, *e.g.*, if BellSouth provides the firm with inferior repair and maintenance services or if BellSouth has limited ability to process new orders or to provide billing information.

Due to the complexity and importance of interconnecting in various ways with the ILEC, it is very difficult to be confident that entry truly has been enabled in Louisiana until interconnection has been shown to work in practice on a commercial scale, encompassing a range of interconnection issues that are meaningful to CLECs with diverse entry strategies. In demonstrating that interconnection in its myriad details really works, an interconnection agreement with a CLEC covering a large geographic area is more convincing and more meaningful than an agreement with a highly localized CLEC.

In order for entry to be feasible, and for CLECs to be willing to make the additional necessary investments to provide genuine competition, potential entrants need to be confident that workable systems are in place on a commercially viable scale. Thus, checklist compliance has to mean more than having something on paper. To be economically meaningful, the details must be worked out in practice and agreements must be fully implemented. There are a great many details that really matter for the commercial viability of CLECs. For many of the terms of interconnection, the interests of BellSouth and CLECs are directly opposed. All of this implies that it is highly desirable to provide

BellSouth with ongoing incentives to cooperate, in the form of withholding the long-distance entry “prize,” until such cooperation has been definitely elicited and shown to truly enable entry.

Interconnection arrangements or offers that are ambiguous, inadequate, or incomplete for CLECs’ needs will hinder local competition. Absent reliable, working interconnection arrangements, CLECs will be wary of making the substantial sunk investments necessary to participate fully in local markets, and the investments CLECs do make will remain at risk. This is certainly true for facilities investments, which are largely non-recoverable in the event that interconnection problems arise, and thus will depreciate in value if the terms or conditions of interconnection fail to achieve operational parity between CLECs and the ILEC.

# Appendix B

## Curriculum Vitae

## **Appendix B**

February 1998

### **CARL SHAPIRO**

#### **Curriculum Vitae**

Haas School of Business  
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Oakland, CA 94618  
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#### **Professional Positions**

TRANSAMERICA PROFESSOR OF BUSINESS STRATEGY  
Walter A. Haas School of Business  
University of California at Berkeley, 1994 - present.

PROFESSOR OF BUSINESS AND ECONOMICS  
Walter A. Haas School of Business and Department of Economics  
University of California at Berkeley, 1990 - present.

DEPUTY ASSISTANT ATTORNEY GENERAL FOR ECONOMICS  
Antitrust Division, U.S. Department of Justice  
U.S. Department of Justice, 1995 - 1996

CHAIRMAN, ECONOMIC ANALYSIS AND POLICY GROUP  
Walter A. Haas School of Business  
University of California at Berkeley, 1991 - 1993.

PROFESSOR OF ECONOMICS AND PUBLIC AFFAIRS  
Woodrow Wilson School of Public and International Affairs and  
Department of Economics, Princeton University, 1987 - 1990.

RESEARCH FELLOW  
Center for Advanced Study in the Behavioral Sciences  
Stanford University, 1989 - 1990.

VISITING SCHOLAR  
Stanford Law School, Stanford University, 1989 - 1990.

ASSISTANT PROFESSOR OF ECONOMICS AND PUBLIC AFFAIRS  
Woodrow Wilson School of Public and International Affairs and  
Department of Economics, Princeton University, 1980 - 1987.

VISITING FELLOW  
Institute for International Economic Studies, University of Stockholm, 1986.

VISITING ASSISTANT PROFESSOR OF ECONOMICS AND PUBLIC POLICY  
Graduate School of Business, Stanford University, 1982 - 1983.

ECONOMIST, BUREAU OF ECONOMICS, FEDERAL TRADE COMMISSION  
Summer 1980.

### **Other Professional Activities**

Vice-Chair, Economics Committee, Antitrust Section, American Bar Association,  
1995 - 1997.

Editor, *Journal of Economic Perspectives*, 1993 - 1995.

President, Industrial Organization Society, 1995 - 1996.

Member, Defense Science Board Task Force on Antitrust Aspects of Defense Industry  
Consolidation, U.S. Department of Defense, 1993 - 1994.

Co-Editor, *Journal of Economic Perspectives*, 1986 - 1993.

Associate Editor, *Quarterly Journal of Economics*, 1984 - 1987.

Associate Editor *Rand Journal of Economics*, 1984 - 1986.

Research Associate, National Bureau of Economic Research, 1985 - present.

Director, John M. Olin Program for the Study of Economic Organization and Public  
Policy, Princeton University, 1988 - 1989

Associate Director, John M. Olin Program for the Study of Economic Organization and  
Public Policy, Princeton University, 1987 - 1988.

## **Affiliations**

American Economic Association  
Industrial Organization Society

## **Education**

Ph.D. Economics, M.I.T., 1981.  
M.A. Mathematics, University of California at Berkeley, 1977.  
B.S. Economics, M.I.T., 1976.  
B.S. Mathematics, M.I.T., 1976.

## **Honors, Fellowships, and Research Grants**

National Science Foundation Research Grant #SES-9209509, "Technology Transitions with Network Externalities," 1992-1994, (with Joseph Farrell).

National Science Foundation Research Grant #SES-8821529, "The Evolution of Network Industries," 1989-1991, (with Joseph Farrell).

Center for Advanced Study in the Behavioral Sciences, Stanford California, Research Fellowship, 1989-1990.

National Science Foundation Research Grant #SES-8606336, "Issues of Industrial Organization in International Trade," 1986-1988, (with Gene M. Grossman).

Alfred P. Sloan Foundation Research Fellowship, 1985-1987.

National Science Foundation Research Grant #SES-8408622, "Technological Competition and International Trade," 1984-1986, (with Gene M. Grossman).

National Science Foundation Research Grant #SES-8207337, "Signals of Product Quality," 1982-1984.

National Science Foundation Graduate Fellowship, 1977-1980.

University of California Fellowship, 1976-1977.

Phi Beta Kappa and Sigma Xi, M.I.T., 1976.



## Publications

- "Antitrust Policy: Towards a Post-Chicago Synthesis," *Jobs & Capital*, forthcoming, 1997.
- "An Economic Analysis of Unilateral Refusals to License Intellectual Property," with Richard J. Gilbert, National Academy of Sciences Colloquium on Science, Technology and the Economy, forthcoming, 1997.
- "Re-Examining Dominance and Unlawful Exclusion Rules," Antitrust Conference Report, The Conference Board, 1996.
- "Mergers with Differentiated Products," *Antitrust*, Spring 1996.
- "Aftermarkets and Consumer Welfare: Making Sense of Kodak," *Antitrust Law Journal*, Spring 1995.
- "Systems Competition and Network Effects," with Michael L. Katz, *Journal of Economic Perspectives*, Spring 1994.
- "Systems Competition and Aftermarkets: An Economic Analysis of Kodak," with David J. Teece, *Antitrust Bulletin*, Spring 1994.
- "The Dynamics of Bandwagons," with Joseph Farrell, in *Problems of Coordination in Economic Activity*, James W. Friedman, ed., Kluwer Press, 1993.
- "Standard Setting in High Definition Television," with Joseph Farrell, *Brookings Papers on Economic Activity: Microeconomics*, 1992.
- "Product Introduction with Network Externalities," with Michael L. Katz, *Journal of Industrial Economics*, March 1992.
- "Horizontal Mergers: Reply," with Joseph Farrell, *American Economic Review*, September 1991.
- "Introduction to Liability Symposium," *Journal of Economic Perspectives*, Summer 1991.
- "Economic Rationales for the Scope of Privatization," with Robert D. Willig, in *The Political Economy of Public Sector Reform and Privatization*, Ezra N. Suleiman and John Waterbury, eds., Westview Press, San Francisco, CA, 1990.
- "On the Antitrust Treatment of Production Joint Ventures," with Robert D. Willig, *Journal of Economic Perspectives*, Summer 1990.
- "Asset Ownership and Market Structure in Oligopoly," with Joseph Farrell, *Rand Journal of Economics*, Summer 1990.

- "Optimal Patent Length and Breadth," with Richard Gilbert, *Rand Journal of Economics*, Spring 1990.
- "Horizontal Mergers: An Equilibrium Analysis," with Joseph Farrell, *American Economic Review*, March 1990.
- "Theories of Oligopoly Behavior," in *The Handbook of Industrial Organization*, R. Schmalensee and R.D. Willig (eds.), 1989.
- "Market Power and Mergers in Durable Goods Industries: Comment," *Journal of Law and Economics*, 1989
- "The Theory of Business Strategy," *Rand Journal of Economics*, Spring 1989.
- "Optimal Contracts with Lock-In," with Joseph Farrell, *American Economic Review*, March 1989.
- "Dynamic Competition with Switching Costs," with Joseph Farrell, *Rand Journal of Economics*, Spring 1988.
- "Counterfeit-Product Trade," with Gene. M. Grossman, *American Economic Review*, March 1988.
- "Foreign Counterfeiting of Status Goods," with Gene. M. Grossman, *Quarterly Journal of Economics*, February 1988.
- "Dynamic R&D Competition", with Gene M. Grossman, *Economic Journal*, June 1987.
- "R&D Rivalry with Licensing or Imitation," with Michael L. Katz, *American Economic Review*, June 1987.
- "Optimal Dynamic R&D Programs," with Gene M. Grossman, *Rand Journal of Economics*, Winter 1986.
- "Product Compatibility Choice in a Market with Technological Progress," with Michael L. Katz, *Oxford Economic Papers*, Special Issue on the New Industrial Economics, November 1986.
- "Investment, Moral Hazard, and Occupational Licensing," *Review of Economic Studies*, October 1986.
- "How to License Intangible Property," with Michael L. Katz, *Quarterly Journal of Economics*, August 1986.

- "Research Joint Ventures: An Antitrust Analysis," with Gene M. Grossman, *Journal of Law Economics and Organization*, Fall 1986.
- "Consumer Shopping Behavior in the Retail Coffee Market," with Michael L. Katz, in *Empirical Approaches to Consumer Protection*, Pauline M. Ippolito and David T. Scheffman, eds., Federal Trade Commission, 1986.
- "Technology Adoption in the Presence of Network Externalities," with Michael L. Katz, *Journal of Political Economy*, August 1986.
- "Entry Dynamics with Mixed Strategies," with Avinash K. Dixit, in *The Economics of Strategic Planning*, L.G. Thomas, ed., Lexington Press, 1986.
- "Exchange of Cost Information in Oligopoly," *Review of Economic Studies*, July 1986.
- "InterLATA Capacity Growth and Market Competition," with Robert D. Willig, in *Telecommunications and Equity: Policy Research Issues*, Proceedings of the Thirteenth Annual Telecommunications Policy Research Conference, James Miller, ed., North Holland, 1986.
- "Can Unemployment be Involuntary? Reply," with Joseph E. Stiglitz, *American Economic Review*, December 1985.
- "On the Licensing of Innovations," with Michael L. Katz, *Rand Journal of Economics*, Winter 1985.
- "Normative Issues Raised by International Trade in Technology Services", with Gene M. Grossman, in *Trade and Investment in Service: Canada/U.S. Perspectives*, R.M. Stern (ed.), Ontario Economic Council, 1985.
- "Equilibrium Unemployment as a Worker Discipline Device: Reply," with Joseph E. Stiglitz, *American Economic Review*, September 1985.
- "Advances in Supervision Technology and Economic Welfare: A General Equilibrium Analysis," with Janusz Ordover, *Journal of Public Economics*, December 1984.
- "The General Motors-Toyota Joint Venture: An Economic Assessment," with Janusz A. Ordover, *Wayne Law Journal*, Summer 1985.
- "Network Externalities, Competition, and Compatibility," with Michael L. Katz, *American Economic Review*, June 1985.
- "Patent Licensing and R&D Rivalry," *American Economic Review Papers and Proceedings*, May 1985.

"Equilibrium Unemployment as a Worker Discipline Device," with Joseph E. Stiglitz, *American Economic Review*, June 1984.

"Informative Advertising with Differentiated Products," with Gene M. Grossman, *Review of Economic Studies*, January 1984.

"Premiums for High Quality Products as Returns to Reputation," *Quarterly Journal of Economics*, November 1983.

"Consumer Protection in the United States," *Zeitschrift für die gesamte Staatswissenschaft, Journal of Institutional and Theoretical Economics*, October 1983.

"A Theory of Factor Mobility," with Gene M. Grossman, *Journal of Political Economy*, October 1982.

"Optimal Pricing of Experience Goods," *Bell Journal of Economics*, Autumn 1983.

"Consumer Information, Product Quality, and Seller Reputation," *Bell Journal of Economics*, Spring 1982.

"Advertising and Welfare: Comment," *Bell Journal of Economics*, Autumn 1980.

#### **Working Papers, Research Memoranda, Work in Progress, etc.**

*Economic Models of Counterfeiting*, with Gene M. Grossman, Report to the U.S. Department of Labor, International Labor Affairs Bureau, January 1988.

"Strategic Behavior and R&D Competition," Prepared for the National Bureau of Economic Research, March 1984.

"Advertising as a Barrier to Entry?," Federal Trade Commission, Bureau of Economics Working Paper #74, July 1982.

"Product Differentiation and Imperfect Competition: Policy Perspectives," Federal Trade Commission, Bureau of Economics Working Paper #70, July 1982.

#### **Book Reviews**

*Controlling Industrial Pollution: The Economics and Politics of Clean Air*, by Robert W. Crandall. Review in the *Journal of Economic Literature*, June 1984, pp. 625-627.

*Sunk Costs and Market Structure: Price Competition, Advertising, and the Evolution of Concentration*, by John Sutton. Review in the *Journal of Economic Literature*, 1993.

### ***Consulting Activities***

Founder, The Tilden Group, 1996.

Extensive experience working with private parties and government agencies on matters involving antitrust, regulation, intellectual property, measurement of damages, and general business litigation. Additional information and references available upon request.

### **Personal Information**

Place and Date of Birth: Austin, Texas, March 20, 1955.

Citizenship: United States of America.

Marital Status: Married with two children.

Hobbies: Ultimate frisbee, squash, wilderness hiking and canoeing, cycling, basketball, chess, flute.

## John B. Hayes

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### Education

**University of Wisconsin**, Madison, WI  
Doctor of Philosophy in Economics, 1994

**University of Denver**, Denver, CO  
Master of Arts in Economics, 1986

**Stanford University**, Palo Alto, CA  
Bachelor of Arts in Economics, Stanford University, 1983

### Awards

1992 Federal Reserve System Board of Governors Dissertation Fellowship  
1986 University of Denver Fellowship

### Current Position

Senior Economist, **The Tilden Group**, Oakland CA  
September 1997 - present  
Economic analysis to support antitrust litigation in high technology and communications industries.

### Professional Experience

Economist, **U.S. Department of Justice, Antitrust Division**, Washington, D.C.  
1993 - 1997  
Economic analysis to support antitrust litigation and Federal competition policy. Advised and trained foreign competition agency personnel. Extensive telecommunications experience includes comments filed with the Federal Communications Commission and analysis of the AT&T-McCaw and Bell Atlantic-Nynex cellular mergers.

Adjunct Professor of Economics, **Georgetown University**, Washington D.C.  
1995 - 1996  
Taught an undergraduate course in industrial organization.

## John B. Hayes

Research Assistant, **Wisconsin Vocational, Technical and Adult Education System**, Madison, WI

1989 - 1991

Economic analysis of labor market trends affecting enrollment in the VTAE system.

Project Manager, **US WEST, Strategic Marketing Division**, Denver, CO

1987 - 1988

Identified new business opportunities. Compared the performance of business units to industry benchmarks. Trained staff in the use of data resources for business performance analysis.

Research Assistant, **Medical Group Management Association, Center for Research and Ambulatory Health Care**, Denver, CO

1986 - 1987

Survey design, implementation, analysis, and presentation of results. Authored articles for the association newsletter and journal. Maintained research databases. Prepared research proposals.

### Research Papers

- 1994 Hayes, John B. "Do Firms Play Exit Games? Theory and Evidence on the Strategic Role of Size in an Exit Game." Ph.D. dissertation, Department of Economics, University of Wisconsin-Madison.
- 1994 Hayes, John B. "An Exit Game with Continuously Adjustable Output and Efficiency Differences." Working paper, Department of Economics, University of Wisconsin-Madison.
- 1993 Hayes, John B. "Do Firms Play Exit Games? Some Evidence on the Strategic Liability of Size." Working paper, Department of Economics, University of Wisconsin-Madison.
- 1992 Eisner, James and John B. Hayes. "Labor Market Information for the Trade and Industry Occupations." Wisconsin Board of Vocational, Technical and Adult Education, Madison, WI.
- 1990 Hayes, John B., Catherine M. Cotter, and Ronald J. Hustedde. "Labor Market Information for Business and Marketing Occupations." Wisconsin Board of Vocational, Technical and Adult Education, Madison, WI.
- 1990 Hayes, John B. "Optimal Exit Strategy in a Stochastically Declining Market." Applied Microeconomics Workshop, Department of Economics, University of Wisconsin-Madison.

**C**



## APPENDIX C

BEFORE THE  
Federal Communications Commission  
WASHINGTON, D.C.

In the Matter of	)	
	)	
Application of BellSouth Corporation,	)	CC Docket No. 98-121
BellSouth Telecommunications, Inc., and	)	
BellSouth Long Distance, Inc.	)	
Pursuant to Section 271 of the	)	
Communications Act of 1934, as	)	
amended, To Provide In-Region	)	
InterLATA Services to Louisiana	)	

**AFFIDAVIT OF MELISSA L. CLOSZ**  
**ON BEHALF OF SPRINT COMMUNICATIONS COMPANY, L.P.**

I, Melissa L. Closz, being first duly sworn upon oath, hereby depose and state as follows:

1. My name is Melissa L. Closz. My business address is 151 Southall Lane, Maitland, Florida 32751. I am employed by Sprint Communications Company L.P. ("Sprint") as Director- Local Market Development. My present responsibilities include representation of Sprint in interconnection negotiations with BellSouth Telecommunications, Inc. ("BellSouth"). In addition, I am responsible for coordinating Sprint's entry into the local markets within BellSouth's states. I also interface with BellSouth's account team supporting Sprint to communicate service and operational issues and requirements.

## **Education and Professional Experience**

2. I have a Master of Business Administration degree from Georgia State University in Atlanta, Georgia and a Bachelor of Business Administration degree from Texas Christian University in Fort Worth, Texas. I have been employed by Sprint for over seven years and have been in my current position since February, 1997. I began my telecommunications career in 1983 when I joined AT&T Long Lines progressing through various sales and sales management positions. In 1989, I joined Sprint's Long Distance Division as Group Manager, Market Management and Customer Support in Sprint's Intermediaries Marketing Group. In this capacity, I was responsible for optimizing revenue growth from products and promotions targeting association member benefit programs, sales agents and resellers. I owned and operated a consumer marketing franchise in 1991 and 1992 before accepting the General Manager position for Sprint's Florida unit of United Telephone Long Distance ("UTLD"). In this role, I directed marketing and sales, operational support and customer service for this long distance resale operation. In Sprint's Local Telecommunications Division, in 1993, I was charged with establishing the Sales and Technical Support organization for Carrier and Enhanced Service Markets. My team interfaced with interexchange carriers, wireless companies and competitive access providers. After leading the business plan development for Sprint Metropolitan Networks, Inc. ("SMNT"), I became General Manager in 1995. In this capacity, I directed the business deployment effort for Sprint's first competitive local exchange company ("CLEC") operation,

including its network infrastructure, marketing and product plans, sales management and all aspects of operational and customer support.

**Purpose of Affidavit**

3. The purpose of this affidavit is to provide input to the Federal Communications Commission (“FCC”) on issues relevant to BellSouth’s application for provision of in-region, interLATA services in Louisiana. Sprint’s perspective is that of a competitive local exchange carrier working to achieve operational readiness for local market entry in Louisiana. Accordingly, I will discuss issues relevant to BellSouth’s ability to provide nondiscriminatory access to operational support systems (“OSS”), the role that performance measurements must play in documenting BellSouth’s ability to meet its parity and nondiscrimination obligations as well as Sprint’s operational experience as a CLEC in Florida.

**Status of Sprint-BellSouth Interconnection Agreement**

4. Sprint is in the process of finalizing its interconnection agreement negotiations with BellSouth in Louisiana. Sprint has completed interconnection agreements with BellSouth in Florida, Georgia, North Carolina and Tennessee and is continuing negotiations in all remaining states in which BellSouth provides local exchange service. Sprint is also working to achieve operational readiness for local market entry in Louisiana and all other states served by BellSouth.

**BellSouth's Operational Support Systems Interfaces**

5. Sprint does not believe that BellSouth’s currently deployed OSS interfaces meet the standard of nondiscriminatory access. Many of the interfaces BellSouth has

introduced to date are interim solutions which do not provide parity with BellSouth's retail systems. "Long term" or "permanent" interfaces will be designed to conform to industry standards whenever possible and to provide full systems flow-through. While these permanent interfaces offer the greatest promise for the provision of nondiscriminatory access, they are still being developed and/or tested. Until these interfaces are fully documented, developed and tested in a real world operating environment, their ability to afford CLECs the opportunity to provide a parity of experience to the systems BellSouth provides its own end-users will be unknown.

6. Proper implementation of nondiscriminatory OSS access is a key component of the ability of any CLEC to enter a local market in a manner that genuinely enables the CLEC to compete with the incumbent LEC. If BellSouth does not implement appropriate electronic interfaces that CLECs can use effectively to gain access on a parity basis to BellSouth's OSS, then BellSouth's superior ability to use those systems to perform essential customer provisioning and care functions will be as formidable an obstacle to entry as BellSouth's bottleneck control over the local networks. As long as it is more difficult for customers to order and receive service from CLECs than from BellSouth, CLECs can never become viable, long-lived competitors in the local exchange markets.
7. For an OSS interface to provide nondiscriminatory access to BellSouth's OSS, it must demonstrate the following requirements to keep the interface and access to OSS databases at parity with BellSouth's retail organization:

8. Electronic Interface: An application-to-application interface (a computer-to-computer interface) that enables a fully electronic interaction between BellSouth's OSS and the new entrant's OSS is required. These transactions must flow through electronically between OSS databases with no human intervention.
9. Equivalence of Information: The interface from BellSouth's OSS must have the same functional information as BellSouth's operational support functions and offer the CLECs parity in accuracy and response times.
10. Documentation: The documentation of each interface needs to be adequately completed and communicated in advance providing a CLEC the opportunity to create its own internal technical interfaces and to develop all the appropriate operational procedures required to support market entry. The documentation must include all the specifications necessary for a CLEC to modify or design their own OSS to communicate with BellSouth's interfaces and OSS, including full documentation of the Applications Programming Interface ("API") for all application-to-application interfaces. The documentation must also include all information necessary to format and process electronic requests so that these requests flow through the transmission links, the interfaces and into the legacy systems as quickly and efficiently as possible, including: (1) syntactical requirements; (2) internal "business rules"; (3) ordering code, including universal service ordering codes ("USOCs") and field identifiers ("FIDs"), used to identify the different services and features used in offering telecommunications services to customers; and (4) all other information necessary to enable CLECs to "pre-

validate” or pre-edit service orders in a manner equivalent to the system edits and other validity checks performed by BellSouth’s service order negotiation systems against their retail service orders.

11. Operability Testing: The interfaces should be tested in a real world environment to verify that a parity level of service can be offered with equivalent information and timeliness. The standards and analysis for determining whether a Bell Operating Company (“BOC”) has met this statutory obligation have been articulated and applied in several prior decisions of the FCC and evaluations of the Department of Justice (“DOJ”). In summary, the relevant standards are whether the access provided affords an efficient competitor a meaningful opportunity to compete and whether the functions provided to CLECs are analogous to functions provided by the BOC to its own retail operation. In applying these standards, the functionality of the BOC systems and the support that it provides for them, the operational readiness of the systems and the performance of those systems should be considered.
12. Standards Based: The interfaces need to be based upon the most recent and applicable industry standards. Without specific industry standards, Sprint and other CLECs are required to build separate "proprietary" interfaces for each ILEC. This unnecessarily increases the cost of entry and adversely affects new entrants' ability to provide a quality and consistent level of service to the customer.
13. Sprint believes that nondiscriminatory access to OSS is achieved when the systems interfaces are functioning in a real world operating environment such that the

resulting experience for the CLEC's end user customer is at parity with what the incumbent local exchange carrier provides its own retail customers. This is the only true test of whether nondiscriminatory access to OSS has been met.

Moreover, Sprint believes that the integration of pre-ordering and ordering functions is critical to providing CLECs with functionality that is equivalent to what BellSouth experiences in its own retail operations. The Applications Programming Interface ("API") referred to by BellSouth as their Telecommunications Access Gateway ("TAG") for pre-ordering and EDI Version 7.0 for ordering appear to hold promise for the provision of nondiscriminatory access to CLECs. Both interfaces possess characteristics that Sprint believes are essential for nondiscriminatory interfaces in that they are based on industry standards and are machine-to-machine interfaces which provide interoperability between BellSouth and CLEC OSS. However, until these interfaces are fully deployed, documented and tested in a real world operating environment, their ability to provide nondiscriminatory access will be unknown.

14. For pre-ordering functions, TAG is based on Common Object Request Broker Architecture, or "CORBA." CORBA is one of the industry standards recommended for pre-ordering functions. Completion of TAG development is critical for CLECs from the standpoint that it will purportedly provide an industry standard, machine-to-machine capability for pre-ordering access, but also because it is part of the platform necessary for CLECs to integrate pre-ordering and ordering functions.



15. TAG technical specifications were provided to Sprint on May 20 but preliminary functional requirements were not provided until late June. Functional requirements are crucial to CLECs because they describe the interface's transactions, what data is available through the interface and how to access the data. BellSouth has advised Sprint that final TAG functional requirements will not be distributed until mid-September. Moreover, Sprint's understanding is that training to review the functional requirements and address questions will also not be available until mid-September. As a result, CLECs will be hampered in their efforts to move forward with development efforts until such training takes place.
16. BellSouth has stated that TAG pre-ordering capability is scheduled for implementation August 30, 1998. Sprint believes, however, that it is highly unlikely that CLECs will be able to take advantage of the interface at that time due to the fact that final functional requirements are not yet available.
17. Sprint believes that TAG appears to hold promise for the provision of nondiscriminatory access to CLECs for pre-ordering. Once again, however, until TAG has been fully developed, deployed and tested in a real world operating environment, its ability to meet the nondiscriminatory access standard will be unknown.
18. BellSouth is currently relying heavily on its Local Exchange Navigation System ("LENS") for pre-ordering functions. LENS is a proprietary BellSouth Graphical User Interface ("GUI") system that functions to exchange pre-ordering and ordering information with BellSouth. This proprietary interface does not conform